

REMARKS

In response to the Office Action mailed June 28, 2004, Applicants amend their application and request reconsideration. In this Amendment claims 4 and 9 are cancelled leaving claims 1 and 5-8 pending.

Examined claims 1, 4, 5, and 8 were rejected as anticipated by Jang et al. (U.S. Patent 6,362,093, hereinafter Jang). This rejection is respectfully traversed.

In this Amendment claim 4 is rewritten in independent form as amended claim 1. Claim 9 is cancelled to resolve an irrelevant issue concerning the species election requirement.

Examined claim 4 and amended claim 1 specify that the burying material is an organic polymeric material and that the organic polymeric material has substantially the same etching rate as the insulating film. This feature of the invention is not disclosed nor suggested by Jang.

Applicants agree with the Examiner's application of Figures 1-5 of Jang in the examination of claim 1, but not with respect to the examination of claim 4. Applicants agree that a first depressed portion 23 is formed in the structure described by Jang as shown in Figure 2 of that patent. Then, as illustrated in Figure 3 of Jang, that first depressed portion is filled with a sacrificial burying material 24 and excess material is removed by chemical mechanical polishing. The resulting polished surface has a resist layer 26 deposited upon it that is patterned to expose the sacrificial material 24. Then, using the patterned resist film 26, both the insulating film 18 of Jang and the sacrificial material 24 are etched, producing the structure shown in Figure 4 of Jang. It is plainly apparent that a remaining portion of the sacrificial material 24a protrudes from Jang's etch stop layer 16, a layer that is exposed by the complete removal of the part of the second dielectric layer 18 exposed by the pattern resist film 26. The presence of this protruding remnant of the burying material, i.e., the sacrificial fill layer 24 of Jang, means that that material is not etched at substantially the same rate at which the second dielectric layer 18 is etched. By contrast, examined claim 4 and amended claim 1 clearly specify that these two materials are etched at substantially the same rate with the result that there is no stump of the fill layer protruding from the bottom of the second depressed portion in the invention, as there is in Figure 4 of Jang. See, for example, Figure 1(F) of the present patent application in which no part of the burying material 7 extends into the second depressed portion 11 upon etching to create the second depressed portion.

Anticipation requires that every element of a claimed invention be disclosed in the prior art. Since Jang does not disclose that the sacrificial film material 24 has substantially the same

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etching rate as the second dielectric layer 18, Jang cannot anticipate amended claim 1 nor any of claims 5-8 which ultimately depend from amended claim 1.

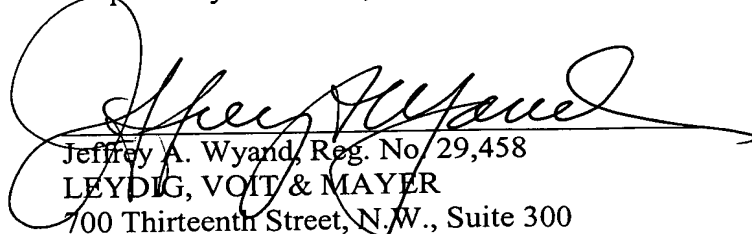
The difference between the invention and Jang can be particularly significant. In Jang, residue from etching of the second dielectric layer 18 can attach to the protruding stump of the sacrificial fill layer. Since the etch rates of these two materials are different, notwithstanding the discussion in column 9 of Jang, the presence of the etching residue of the second dielectric layer interferes with the removal of the remaining sacrificial film layer, an essential step in Jang before the deposition of the electrically conducting material 30. The problem created by the presence of the etching residues is not present in the invention, demonstrating that the invention is neither disclosed nor suggested by Jang.

Claims 6 and 7, claims that depend from claim 5, were rejected as obvious over Jang in view of Jain et al. (U.S. Patent 5,741,626, hereinafter Jain). This rejection is respectfully traversed.

Even assuming that Jain discloses the limitations of dependent claims 6 and 7, there is no suggestion in the Official Action, and none in the references, that Jain could supply the part of amended claim 1 that is missing from Jang. In other words, the rejection of claim 6 and 7 entirely depends upon the anticipation of amended claim 1 by Jain. Since there is no such anticipation, the rejection of claims 6 and 7 must be withdrawn upon the withdrawal of the rejection of claim 1.

The foregoing amendment places the application in form for allowance which is earnestly solicited.

Respectfully submitted,


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